the aponeurosis is freed. If the fragments are kept closely approximated during the drilling, the drill will not enter the joint at all.

Experiments on the cadaver by Dr. L. A. Greenfelder, of the Michael Reese Hospital, and myself have convinced us of the ease with which this plan can be carried out. The greatest difficulty we encountered was in fracturing the patella without too much comminution. Even then we had no trouble in holding many fragments in close apposition. It is surprising how easy the drill traverses the bone, the only point at which any force is necessary being the point of entrance, the cancellous interior and hard bone at the point of exit giving almost no resistance.

THE RADICAL CURE OF HERNIA.

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AT the annual meeting of the British Medical Association in Dublin, the chief subject of discussion in the surgical section was the Radical Cure of Hernia .Not less than ten papers on this were read, exclusive of numerous speeches. The collective amount of experience represented was very great, amounting to hundreds of cases, individual experience generally ranging from twenty to a hundred cases.

Most of these contributions lost force from the obvious fact that each writer and speaker was entirely, or all but entirely, inexperienced in every form of operation except that practised by himself.

Another thing to take exception to was the apparent vagueness existing in most minds as to the indications which justified an operation. The general idea seems to be that there are a considerable number of herniæ which "cannot be kept up by any form of truss" or which are so large in size that something ought to be done.

We venture to say very positively that among reducible herniæ, rebelliousness to treatment by truss is one of the rarest indications for operation. In plain language, it is usually an indication of incapacity in the instrument makers and inexperience in the surgeon.

It was not clear that any but a small number of the writers and speakers realized the vast difference in suitability for operation between femoral and inguinal herniæ, or between adults and children. One of the speakers announced himselt as always ready to operate on children. The most experienced operator on hernia present took an almost diametrically opposite view, and surely the right one.

Almost all the cases referred to had been operated on by some form of open operation involving either suture of the neck of the sac or of the walls of the canal or both, or else some modification of this operation, or of one of its stages.

A not inconsiderable fatality had to be acknowledged, although the enthusiatic operator was sometimes disposed to exonerate the operation by hook or by crook.

In short the discussion at Dublin displayed far too much tendency to make comparisons without knowledge, and to roundly assert what were sometimes merely fanciful beliefs. For example take the way in which the important question of the indications for wearing a truss after operation was dealt with. On one side there were gentlemen to whom the application of a truss to the site of an operation for the radical cure of hernia was plainly most mischievous, calculated only to cause the absorption of plastic lymph, etc. Surely surgery has outgrown this way of treating an important question, a way which involves a false assumption of knowledge of the nature of the plastic process in the canal.

On the other side the belief in the value of trusses as means of confirming a radical cure after operation seemed to be supported by little else than a vague general impression; only one speaker gave any comparative observations.

We will now briefly notice the papers one by one.

Mr. Mitchell Banks who opened the discussion had operated no less than one hundred and six times up to February, 1887. He had adhered to a single method of procedure for two reasons, "first, because, in order to judge of the value of any given operation, it must be done many times by the same man, who is then in a position to judge accurately of its good qualities and its effects, and, secondly, because the operation is the simplest that has yet been devised." He makes no pretence to originality, and though there are a considerable number of surgeons who speak of "Banks' operation" it must in justice be allowed that the Liverpool surgeon is not himself to blame for any error thereby implied. The form of operation in question is the type of the procedures now in general favor. In inguinal hernia the sac, after being cleanly dissected out, is opened, and all bowel is replaced and adherent omentum tied and cut away. The sac is then well pulled down, ligatured as high up in the canal as possible, and removed. Finally the pillars of the ring are brought together by two or three silver sutures, which are left in position. In femoral hernia the cleaning and removal of the sac constitute the whole operation, and no attempt is made to close the femoral aperture. "In ventral and umbilical hernia use is frequently made of the whole or part of the sac as a kind of plug to stop the aperture, which is generally large, and in which it is seldom possible to adopt any means of approximating the edges which seems likely to be permanent."

Of Mr. Banks' one hundred and six cases, thirty-eight were cases of strangulation. In the tables given, the non strangulated are divided into two groups, the first in which the herniæ were "of moderate size," and the second where the herniæ were "very large" or "enormous" and "not capable of support by trusses." Of the latter class Mr. Banks states that they are most serious things to tackle. The operation is usually difficult and prolonged, and the dangers to be met and overcome are both numerous and various. All must agree with him in these statements; but, assuming the operation to be carefully and accurately done, I have no hesitation in saying that all I have seen and read of such cases, points to the fact that the one and only *great* danger these cases run is that of septic infection. Mr. Banks misses this point altogether in his remarks; but his excellent tables show that certainly three, and probably the remaining two of his five fatal cases of "very large herniæ," died of septic infection. Now it may not become the critic or brother surgeon to put down such fatalities to the operator instead of the operation; but the duty of the operator is to be perfectly frank to himself about them, and Mr. Banks should be asked whether he does not think that all the five cases just mentioned would not have been saved by more vigilant antiseptic precautions. He is a most honest and straight forward writer and will take this question in good part.

It is noteworthy that of these five fatalities the first and second, and also the third and fourth, occurred consecutively, and the dates of these two couples coincide with those of the only two complete failures recorded in table I, (of 5 herniæ of moderate size). Now, there is good reason to believe that suppuration tends to cause failure.

Did cases 20 and 45 in table I suppurate?

The facts as they stand suggest some accidental event at those dates. Many such occur in practice. As an example may be quoted the surgeon's being compelled by ill health, or other cause, to leave the after-treatment too much to subordinates, who, in the present state of surgical education, have often about as much real proficiency in the practice of antiseptic surgery as they would have of playing the violin, or painting in oils, after merely hearing a course of lectures on the fine arts. I only give this as one example, out of many, of the way in which operations become dangerous which ought to be, and let us hope will be, made safe.

Among the 68 cases without strangulation there were two fatalities. One was that of a weakly child, and the other patient suffered from locomotor ataxy. Other papers in the series under notice furnish facts which seem to point to open operations for radical cure of inguinal hernia being more dangerous in children than adults.

Mr. Banks appears, at first sight, to have had unusual success with strangulated cases. Only three died out of thirty-eight. But these figures, and consequently the conclusions he draws from them lose value, because, as he tells us, they do not include "many" where the bowel being gangrenous, or the patient old and weak, with the hernia large, he did not tie the sac, etc. Now, these are the very cases that furnish most of the fatalities in ordinary statistics.

As to the utility of the operation, 66 cases were followed up and of these, 44 were "completely successful from a curative point of view." Seven were "partially successful", *i. e.*, all the patients declared themselves benefited by the operation.

Mr. Banks sums up his general impressions as follows;

1. The prevalent notion that the wearing a well-fitting and well-acting truss is a great burden is greatly exaggerated. After a time a man puts on his truss as he puts on his braces, and thinks very little about it, provided it does its work properly.

2. With regard to children, he thinks that operative procedures are very seldom indeed required. Of his own cases, only some four or five were done on children. He firmly believes that a well fitting truss, worn for a sufficiently long period, will cure the vast majority of herniæ in children. Of course, there are exceptional cases.

3. He thinks that operation may always be recommended, and even urged in cases of small femoral herniæ with adherent omentum.

4. The same rule applies to cases of inguinal herniæ, which are incapable of support on account of the pressure of adherent omentum, or which, by reason of their mere size, cannot be kept up, and so render the lives of the patients at once useless and unhappy.

5. No person should be subjected to operation who can wear with comfort a truss, which keeps his bowel securely in position.

6. Mr. Banks strongly recommends every body to wear a light support, even after the operation, not believing at all that this destroys adhesions. He found that in almost every instance of failure the patient, feeling confident in his cure, had omitted to wear a support, or else it got broken, and poverty and carelessness prevented the obtaining of another.

It should be noted that the majority of Mr. Banks cases were examined and their condition noted from three to five years after operation. The first is dated Jan., 1880.

He considers that, strictly speaking, there is no such thing as a radical cure of hernia. "The main reason is that a man who gets a rupture has naturally a weak and yielding canal or ring, and when you have patched him you can only put him in the same position he was in before the rupture, because he will still be a man with a weak condition of his abdominal wall."

In connection with this opinion it may be pointed out that not one of the above six "general impressions" as Mr. Banks calls them, can be deductions from the facts he gives in his paper.

The reader is left to analyze and study these said facts, and draw from them his own conclusions. This mode of constructing a paper is far from being a praiseworthy one. One evil of it is that the reader who does not detect it, may be misled into attaching to Mr. Banks's "impressions" the value which is justly due only to his experience. There is internal evidence in the paper to show that he had all these "impressions" before he had any experience at all. Curiously also, all the six are opinions on questions which are only secondarily affected by operative experience, for what does this affect the value of trusses, the prognosis of children's herniæ *not* operated on, the dangerous character of femoral herniæ left alone, etc.?

The peculiarity we have just pointed out is probably due to the fact that the paper represents an address limited to a short time for its delivery, but required to open a full debate on a very extensive subject.

To return to Mr. Banks' opinions. He says "Does not the the operation close the inguinal ring? I say most distinctly, no. All parings and scrapings and freshenings of the inguinal canal I hold to be utter nonsense and quite theoretical. When an inguinal hernia is big enough to warrant an operation, there is uncommonly little canal or ring left. I have generally found a big hole with a thin edged margin, which has taken three or four fingers of an assistant to plug up, while the sac was being removed. Then what is the use of pulling the pillars together by sutures? I do it simply with the object of holding the parts together temporarily while the wound heals, so as to prevent all danger from coughing, or straining, because in very big operations I leave the wounds quite open."

Professor Macewen being also one of the surgeons invited to open the discussion on The Radical Cure of Hernia, at the Dublin meeting of the British Medical Association, preferred "to give a demonstration of an operation for the radical cure of hernia, which had been performed by him frequently during the last ten years, and which had been recently published in the ANNALS OF SURGERY, August, 1886."

It is, therefore, unnecessary to give in this journal an account of Prof. Macewen's demonstration. It will suffice to recall that the special feature of the operation in question is the treatment of the sac. This, instead of being removed, is preserved. It is completely returned beyond the limits of the canal, and formed into a pad, which is placed on the abdominal aspect of the circumference of the internal ring.

In dealing afterwards with the walls of the canal, the author points out that there are two objectionable points which ought to be obviated. First, the stitch through the conjoint tendon is single, and includes the external oblique, therefore, the apposition of the internal with the outer pillar is not so extensive or so exact as it would be were a double suture placed in the conjoint tendon. Secondly, the conjoint tendon is approximated to the outer pillar of the external ring, the abdominal wall being thinned thereby, and the natural valve which the canal forms is, to a great extent obliterated. Instead, one ought to endeavor to bring the conjoint tendon into close proximity with that portion of Poupart's ligament on the level of the lowest part of the internal opening, and above by the transversalis and internal oblique muscles, at a point corresponding to the highest level of the internal ring, the aim being to carry the conjoint tendon outwards towards the fixed unyielding ligament of Poupart, and to unite with the transversalis and internal oblique muscles.

To judge of the care and finish with which this form of operation has been worked out in every detail, inclusive of after-treatment, the author's account must itself be read. The results are very extraordinary. The operation has been performed in sixty-five cases of inguinal hernia; and its principles have been applied in sixteen cases of femoral hernia,—making a total of eighty-one cases.

There have been no deaths, although twenty-nine of the cases were of strangulation.

Although forty cases were kept under observation over a year, (including some for two, three, four, and five years,) not one of these was otherwise than completely successful.

Other cases were followed for periods of eight months, and the like, with the same result.

The only known failure was an evident failure from the first, owing to an attack of acute meningitis which put the healing process in abeyance.

I do not know where else to find success recorded equal to this.

Sixteen of the eighty-one cases were under ten years of age. The great majority of the rest were adults.

The next paper read was that of Prof. Thornley Stoker. He protests against the use of silver wire altogether, and considers the approximation of the walls of the canal by sutures of any kind a matter of relative unimportance. "The best and most permanent closure depends on the exudation and organization of lymph, and the consequent consolidation and drawing together of the parts, assisted by such a plug as the twisted sac is capable of affording," *i. e.* by the method of Dr. Ball.

Such is Mr. Stoker's belief. His mode of operating does not materially differ from that of Dr. Ball, to whom he gives the credit of it. The former goes on to say,—"I have found great advantage in dealing with the sac after this method; it forms a better, more easily treated and more appropriate plug than invaginated tissue; it fills the canal completely, and by virtue of its attachments to the walls, draws them together when twisted, instead of forcing them apart as invaginated tissue must. With a view to close the boundaries of the canal, I prefer not to separate the sac from the deep portion of the canal. The peritoneum, in the bulk of cases, is practically not opened, as the ligatures which surround the sac are applied before it is divided. The risk of peritonitis is, therefore, small."

These remarks will have to be considered in attempting to estimate the value of the procedure they are intended to support, of which it will be better to give a description taken from the account given by its inventor, Dr. C. B. Ball, himself.

1. The sac must be completely and very thoroughly isolated. The separation must be carried up right to the internal abdominal ring, and the peritoneum loosened from its attachments for a little distance from that opening, (as in Macewen's operation).

2. Emptiness of the sac must be assured, by opening it if necessary. Then its neck is to be grasped with "broad-catch forceps," (which are something like Thorton's, T shaped forceps used in ovariotomy) and gradually twisted up. Usually "four to five complete revolutions are sufficient, but this, in a great measure depends on the thickness of the sac, and the portion of it to which the torsion forceps is applied; the twisting should be continued until it is felt to be quite tight, and that any further torsion would produce rupture.

4. The torsion forceps is now transferred to an assistant, who is to maintain the twist; a stout catgut ligature is placed around the twisted sac as high up as possible, tied tightly, and the ends cut off short.

4. Two sutures of strong aseptic silk are now passed through the skin at a distance of about an inch from the outer margin of the wound,through the outer pillar of the ring,through the twisted sac in front of the catgut suture, and then through the inner pillar of the ring and skin upon the inside. These sutures prevent the sac from untwisting, and it is now cut off in front of them. A catgut drain is brought out of a separate opening at the back of the scrotum, and the two sutures are closed over lead plates, which lie at right angles to the wound. "Dry dressings are employed, retained by a double spica bandage, which is painted over with a solution of silicate of potash."

Studies on the dead subject show that "the peritoneum is thrown into a number of spiral folds radiating from the internal abdominal ring in all directions. These extended for a distance of over four inches,and in two instances were observed to pass over the internal abdominal ring of the opposite side. The entire length of the inguinal canal was occupied by the twisted sac, which completely filled it, and the sides of the inguinal canal were closely approximated. There was no depression at the internal abdominal ring; indeed, this portion was more prominent than the rest of the peritoneum in the neighborhood. This can readily be understood from the way in which the final sutures are passed, which have the effect of pressing back the twisted cord towards the abdominal cavity."

With regard to the results, Dr. Ball has performed the operation, himself, twenty-two times without a death, and has not heard of any fatality from it in the practice of other surgeons.

With one exception, all the above (twenty-two) cases have been kept under observation, and in three only is it necessary to wear a truss in consequence of slight bulging, during coughing, at the inguinal ring, but in no case has a hernia of any size developed, and the remaining cases are, so far, absolutely well.

Two or three cases have been observed in which twisting the sac on one side cured a bubonocele on the other side, proving the far reaching effect of torsion.

No details either tabulated or otherwise are given of Dr. Ball's cases.

Mr. Arthur Barker, of University College Hospital, London, entitles his paper "On Thirty-five Operations for the Radical Cure of Hernia by Original Methods." He says that in all his cases trusses were either inapplicable or ineffective. None of the cases under consideration were strangulated.

The thirty-five operations were done on twenty-nine individuals, of whom three had herniæ on both sides, and three required a second operation on account of return of the rupture.

There were twelve congenital, and fifteen acquired inguinal herniæ, one femoral and three umbilical. Among the inguinal were one or two in which the cæcum was prolapsed into the sac. Twenty of the patients were under ten years of age, and the remaining nine were over twenty. One was four months old, and one seventy years.

In one of the inguinal cases, Dr. Macewen's method was applied. The remainder were treated as follows:

Hard twisted silk was used to close the abdominal opening in all cases but two. In these two exceptions, the herniæ rapidly returned. A good deal of tissue is enclosed within the loops, and the latter are not drawn tightly.

The neck of the sac is cleared all round at the level of the external ring, and then ligatured after being opened to see that it is empty. The sac is then cut across half an inch below the point of ligature, and the scrotal part afterwards left to take care of itself. "One of the threads hanging from the stump of the neck of the sac is now threaded in a Liston's needle and the latter is passed up the inguinal canal in front of the vas, guided by the left index finger, which pushes the stump of the sac before it and feels for the inner aspect of the abdominal opening, that is, the internal ring. Here the needle is forced through one border of the ring and out through the external oblique muscle. It is then unthreaded and withdrawn, and is again filled with the other thread hanging from the stump of the sac. This is now carried in the same way as the first up the inguinal canal through the border of the opening opposite to that in which its fellow already lies, and through the external oblique as before. Both threads being now pulled upon, the stump of the sac is drawn well within the abdomen, and when the threads are knotted securely the first step, namely, that of closing the internal ring is complete.

The reader will notice that no pains are taken either to separate the neck of the sac from the walls of the canal, or the tissues of the cord from the neck of the sac. The knot on the lower end of the latter is simply dragged up into the neighborhood of the internal ring, and the cord left to take care of itself.

Then the walls of the canal are brought together by several silk sutures, (from four to seven).

All drainage is said to be unnecessary "in almost all these cases" if the wound is completely dried, up to the moment of closure, and is well padded with antiseptic wool from the first.

As regards duration of results, twenty out of the twenty-nine patients have presented themselves recently for examination and one has been heard of through competent observers. Of these twenty, three were quite well twenty months after operation, seven between twelve and fifteen months, and four between six and twelve months.

In a later note (dated November, 1887) it is added that six other operations have been done by the author, of which five healed by the first intention, and one suppurated; also, that two of the remaining cases had turned out to be failures.

Mr. Kendal Franks, like the preceding author, urges the importance of perfect asepticism. He also thinks that the use of a truss after operation is calculated by its pressure to cause absorption of lymph, and consequent harm. With regard to ultimate results, the majority of his twenty-four cases appear to have been completely successful.

He describes one interesting case in which, twelve months after operation, a small hernial protrusion appeared *near*, *not at* the site of operation.

I can add to this a precisely similar case which came under my own observation. My patient had previously been the subject of Fitzgerald's operation, and I suspect that the tiny aperture through which the new hernia appeared had been caused by either the cutting or the dragging of the gold wire left in.

Mr. Franks was almost the only contributor to this debate who, referring to the indications for or against operation, appeared to remember that one individual's case may differ from that of another for reasons connected with occupation, disposition, age and the like. As also reminded his hearers of the dangers of leaving a hernia alone.

With regard to operative details, he makes the skin incision on a higher level than, but parallel to the inguinal canal, so that when the operation is completed, the skin wound may not correspond with the situation of the wire sutures, and so that it may be further removed from sources of infection.

I myself advocated a similar plan, for similar reasons, a year or two ago in the *British Medical Journal.* It is plain, however, from the context, that Mr. Franks came to the same conclusions independently.

He clears the canal and both rings carefully. "In some recent herniæ, especially of smaller size, the sac and its contents may have slipped back into the abdomen. "In such cases I am satisfied to leave them there, and merely to close the rings and canal. Some of my best results may have followed this method."

There is one curious detail in Mr. Franks mode of operating, namely, the fixation of the ligatured stump of the sac *between* "the pillars" of the internal ring. This he does with a suture of silver wire.

This mode of obliterating, or attempting to obliterate, if we so regard it, the original canal cannot be clearly described in abstract. Three silver sutures are placed. His description and justification are to be found in the *British Medical Journal* for Dec. 3, 1887, p. 1203.

In closing the wound he always uses buried sutures.

Dr. Rabagliati, of Bradford, England, related how his results with respect to strangulated hernia had improved since he adopted the plan of excising the sac and sewing up its neck.

Dr. Francis T. Heuston, of Dublin, read a case of femoral hernia in which the right Fallopian tube was strangulated and gangrenous. He removed the tube and the ovary, which was also in the sac. He remarks, "it is sufficiently rare to find the Fallopian tube and ovary within hernial sacs, to allow of another case being recorded; as I find in 1871 there were only thirty-eight cases recorded, namely, twenty-seven inguinal. nine femoral, one sciatic and one obturator. Of these, however, seventeen were congenital, all of which were inguinal, and the ovary alone was usually in acquired herniæ, while only five of the cases contained intestine." The following sentence, referring to Dr. Heuston's case is instructive. "The sac was (when opened) seen to contain a loop of intestine, which was returned readily within the abdomen, when another structure came into view, occupying the deeper portion of the sac, which was at first thought to be the vermiform appendix, but, on further examination, was found to be the Fallopian tube in a gangrenous condition," etc. Dr. Heuston twists the sac, uses chromic gut, and unites the deeper structures, in consecutive order with buried sutures.

In the discussion on the above papers, Mr. Walsham said he always practised "Banks' operation" and had found it very successful. He tied with kangaroo tail tendon, which, when securely knotted, he preferred to both wire and silk. He thought the after-wearing a truss calculated to cause absorption of lymph. Mr. Thomson supported Dr. Ball's plan. Mr. Wheeler practised "the dissecting operation with success, using catgut for children, and silk for adults. He used a pad and no truss in the after-treatment. Dr. Ward Cousins was the only surgeon present who warmly advocated operation on young children. He said that. of fifty on whom he had operated, thirty remained well after twelve months. He had only operated on ten adults. Professor Kocher, of Berne, agreed with Mr. Mitchell Banks that we ought to distinguish between large and small herniæ. Failure after operation on the smaller was really a failure of expectant treatment kept up too long. He preferred silk or wire to catgut.

Mr. C. B. Keetley said that when the arrangement was made by which he was to be one of the speakers to open the debate, it was, he suspected, in order that there might be someone present to deal with the treatment of hernia by injection of the canal. At the Cardiff meeting he had described the method and immediate results. He would now report how far those results had been lasting or otherwise.

Confining himself to *operations by injection done over a year and a half ago* he had evidence of the present state of these in the case of eleven operations done on nine patients. Four patients, representing five herniæ, state themselves to be cured. He had recently seen two of the patients, *i. e.*, three herniæ, and found the cure to be real and absolute. Over two years had elapsed since two of these operations. One patient is probably cured, but has continuously worn a truss which she now wishes to leave off. Three of the patients, in whom four herniæ were operated, have received no benefit as far as he could tell, but, curiously enough, are thought by themselves to be better. One of these failures was injected with absolute alcohol only, and not with the oak bark decoction. Of the remaining three patients, it had not yet been possible to learn anything, they having left their old addresses. Most of the patients discarded trusses within two or three months of operation. One case suppurated, namely the one who now describes himself as "nearly recovered."

The mode of operating had been described in the *British Medical Journal* (Vol. ii, 1885, p. 443).

Perhaps failure may sometimes be caused by (1) not using enough of the injection. (2) by not getting it really into the canal, and (3) by the fluid's gravitating, or otherwise escaping, out of the canal. The writer had seen an operator invaginate the external spermatic fascia before the nozzle of his syringe instead of piercing it.

He remarks, "while I believe the operation to be by far the safest and easiest form of operation there is for a surgeon of moderate experience and skill, I see clearly enough that for certainty of result it cannot compare to operations involving mechanical interference with the sac and canal, and I believe the latter to be safe enough in the hands of a few surgeons, but only a few. If I suffered from hernia myself, I would not let anyone try his prentice hand on the sac of my own hernia and the walls of its canal." The dangers of operations in which the sac is interfered with, are only reduced to insignificance when there is found an operator of considerable experience in dealing with herniæ, thoroughly practiced and qualified in antiseptic surgery, and who, moreover, can always keep a cool head and tell when to stop.

One point in Mr. Keetley's paper was the recommendation that all stout patients with rupture should be urged to adopt a modified Banting system of diet. Abstinence from starches and sugars gives astonishing relief to many fat people who cannot or will not have their herniæ directly interfered with.

SUPPLEMENTARY COMMENTS ON QUESTIONS RAISED IN THE ABOVE DISCUSSION.

With regard to the primary question as to what *persons* were suitable for operation, no speaker contributed anything more valuable than a statement of impressions. Mr. Banks was greatly opposed to operating on children. Mr. Cousins operated on scarcely any other class. Who has any right to blame the latter for having an exceptional opinion? He has as much right to be guided by his own impressions as other people's. What are wanted are facts. Some may be collated from the details given in the course of debate. These point to the probability that suppuration is more common in children operated on for radical cure than in adults, *e. g.*, two of the three cases given by Mr. Stoker were children. Both suppurated; one died "soon afterward,' of tubercular meningitis.

In the other, æt. 3 years, urine got into the wound on the second day. "A slight fulness, threatening a return of the rupture, showed itself six months afterwards," and required the application of a truss.

The third case, an adult, did not suppurate, although an operation for varicocele had previously caused free suppuration in this same patient.

Again, in case thirty-three of Prof. Macewen's, a child of 5, "urine saturated dressings, temperature increased and slight suppuration."

Mr. Banks only operated on three children under 10. One of the three, æt. 2 years, "died in seven hours from shock." Operation very prolonged owing to extensive adhesion of bowel to sac." Now cases in which this occurs are not very exceptional.

I can add to this my own experience. The only patients I have lost after excision of the sac (except strangulated cases) have been infants.

It is far more difficult to get a surgical nurse competent to attend young children than to deal with adults. And the difficulty the surgeon has in keeping the dressings dry and snug must be known to everyone.

It will have been noted that even of the fifty children operated on by Mr. Ward Cousins, twenty had proved failures before a year elapsed.

Next with regard to *the chances a child has of radical cure by truss-treatment.* I can make this contribution to an answer to that question, if, in a long series of adult patients who come for trusses, all are asked at what age their rupture began, only a minute proportion will reply "in infancy." One of my patients who had a congenital inguinal hernia in infancy and who had recovered, developed a hernia in the same region when adult; but the new hernia could not be congenital, because he had a large hydrocele of the tunica vaginalis lying behind it.

Mr. Banks says there is *no such thing as a genuine radical cure*, That is perhaps mainly a question of words. But is he right in asserting that to have once had a rupture implies a naturally weak and yielding canal or ring?

Now the proportion of people with rupture increases with age so that in very advanced life, one person out of three is ruptured. If the span of human life were longer, would not almost everyone be ruptured who survived well into the second century? Mr. Banks would perhaps say that age brings the weakness. Very well then, no operation can prevent any man from growing old, so perhaps we ought all to wear trusses.

Let anyone carefully review the facts contained in papers, like, *e. g.*, Dr. Macewen's, and then ask himself which is misleading—the term "Radical Cure of Hernia" or Mr. Banks' condemnation of it?

With regard to the use of *silver or gold wire*, surely it *must* tend to cut and damage the inguinal pillars. If ever there was a fair *a priori* argument, this is one. And it is supported by cases like those of Mr. Kendal Franks and my own mentioned above, in which new herniæ appeared coming through fresh hernial apertures in the pillars after the insertion of such wires. From the antiseptic point of view, they, on the one hand, form no nidus for germs as animal ligatures do in cases which suppurate. On the other hand they form a greater obstruction to the escape of deep pus in such cases.

Bronchitis is plainly a danger specially associated with operations for radical cure, especially in the old and fat.

Is it advantageous or injurious to plug the canal with the stump of the sac? Several of the above surgeons advocate this. None of them have got results equal to Macewen who reduces it. It seems to me a plan open to the greatest objections. It must make abrasion of the walls of the canal impossible, it must leave a wedge ready to lead the way down when a new rupture tends to come. It seems to me only a shade better than the vain practice of ligaturing a stump of omentum in the neck of the sac.

The question of the *truss in after-treatment* has already been partly dealt with, but it should be added that most of those who believe a truss can only do harm by causing absorption of lymph, use a pad and bandage instead. Now what are a pad and bandage but an inelastic and ill-fitting form of truss? Surely, also, if the walls of the canal adhere together at all, they must do so in the same way as all other raw surfaces do, *e.g.*, the flaps of an amputation stump. Would pressure cause such flaps to separate after once uniting? Now there are no carefully observed, weighed and numbered facts bearing on this question, but surely the probabilities are entirely in favor of a truss being after, as it certainly is before, an operation, calculated to favor the radical cure.

In reading of *Dr. Ball's torsion plan*, it really seems difficult to see why what can be done with it cannot be done nearly if not quite as well without it. At all events the neck of the sac can be closed at the highest desirable point without it. In inguinal herniæ the ligature can be applied as high as the cord can be separated. Any higher action either by ligature or torsion would seem to me dangerous to cord and testicle and it is not without astonishment that one sees no reference to this point by any of the Dublin surgeons.

Moreover, without any torsion, a large extent of the parietal peritoneum can be pulled into the canal, I will venture to think, in any case in which it would be justifiable to twist it. I have myself pulled a part of a well marked urachus (obliterated) from the middle line into the sac of an inguinal hernia.

It is in inguinal herniæ that Dr. Ball's plan seems to me at first-sight not a good one. Taking the hint from him I have several times twisted the sac in umbilical herniæ. But, instead of tying and excising it, I have reduced it en masse between the parietal peritoneum and linea alba, closing the freed aponeurotic aperture with hare-lip pins.

The very existence of such a thing as the radical cure of hernia by injection is ignored by all the writers but one. Nevertheless a considerable proportion of the cases in which suppuration and even death followed excision of the sac might have been operated on by injection with safety and with every prospect of success. Surely every surgeon who pretends to attempt the radical cure of an affection which, like hernia, presents itself in a multiplicity of different forms, degrees, and aspects, ought to make himself practically familiar with the various different modes of operating on it which have proved successful, and more especially with a mode which is both easy and harmless.

LAPAROTOMY FOR INFLAMMATION OF THE VERMIFORM APPENDIX WITH ULCERATIVE PERFORATION, FOLLOWED BY RECOVERY.

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ON January 23, 1888, P.H.B., a lawyer, æt. 35, consulted me for pain in the lower portion of the abdomen, accentuated over the cæcal region. Palpation revealed a fulness with slight induration over the colon,but no tumor, and as there had been constipation, more or less pronounced, for some time previously, partial impaction was diagnosticated. Hot fomentations, castor oil and large enemata were prescribed, with improvement so marked that, on the 27th the patient was dismissed, with a special injunction to remain quiet until all trace of tenderness in the iliac region had disappeared. On February 1, four days later, I was again called and found the previous symptoms aggravated—patient had been up and walking about—there was tenderness over the cæcum; with induration not specially marked, pain radiating over right side of abdomen. Temperature, 99°. Perityphlitis was undoubtedly present. Hot fomentations were again ordered. Iodine as a counter-irritant, was applied, and as the bowels had been freely moved, morphia, $^1/_3$ gr. was given hypodermatically and ordered to be continued sufficiently often to control pain and promote quiet. Diet to consist of milk. The succeeding five or six days were marked by no special change in the condition of things, save that the induration had increased to some extent, as had also the tenderness. Temperature, 100°. There was dorsal decubitus with flexion of the right thigh, fluctuation could not